Conferences on

Reburning for NOx Control
and
Selective Catalytic and Non-Catalytic Reduction for NOx Control

Status of Regulatory Programs for Implementing Regional NO_X Reductions

Robert LaCount
Resource Data International, Inc.
1320 Pearl Street, Suite 300
Boulder, CO 80302
Email address: rlacount@resdata.com

The 1990 Clean Air Amendments (CAAA90) made a significant departure from previous amendments in the way it began to define the problem of ground-level ozone. Previous amendments viewed the ground-level ozone problem as an issue to be addressed primarily within the borders of individual states. The CAAA90 marked the first time that the transport of ozone and its precursors, mainly nitrogen oxides (NO_X), was recognized as a fundamental component of the ground-level ozone problem. Following the course set out by the CAAA90; two regulatory initiatives are currently underway at the state and federal levels with the goal of reducing ozone transport through regional NO_X reductions. The first is the Ozone Transport Commission's (OTC) NO_X Budget Program and the second is the U.S. Environmental Protection Agency's (EPA) regional ozone transport rule.

The first initiative was developed under the auspices of the OTC. This organization, founded by the CAAA90, is comprised of the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, the District of Columbia, and the northern counties of Virginia. The OTC is chartered to develop regional ozone attainment plans within the Northeastern U.S. May 1, 1999 marked the beginning of the OTC's NO_X Budget Program. Affecting large electric generating units and industrial sources, the program requires approximately a 55% reduction from 1990 baseline NO_X levels for the region. The program is implemented as an emission trading system where sources are allocated NO_X allowances for each ozone season. One NO_X allowance authorizes the emission of one ton of NO_X. The allowances may be traded between sources and third parties in order to lower the cost of compliance. Prior to the start of the program, NO_X allowances were trading at prices ranging from $4,500 to over $7,000. These prices are much higher than originally anticipated when the program was developed and probably do not accurately reflect the long-run cost of compliance.

A number of key factors are believed to have contributed to the current price levels. First, the program is just now getting underway and the majority of trades reflect allowance prices in anticipation of the program's operation. Companies tend to be conservative when it comes to compliance decisions, especially before real operating experience is gained under the program, and the early prices reflect this conservatism. Second, a number of the state rules used to implement the program were not adopted until the latter part of 1998, less than a year from the start of the program. Furthermore, the rules in Delaware and Maryland were challenged by affected sources in those states. The litigation resulted in a delay for implementation of the Maryland rule and a second phase of litigation is still unresolved for the Delaware rule. Coupled with uncertainty regarding future emission reduction programs that are targeted for 2003, many companies were reluctant to invest in addition control equipment for the 1999 ozone season resulting in a very tight compliance margin for the first year of the program.

Third, many sources did not receive their allowances until close to the start of the program. In addition to the allowances that are given out for each ozone season, companies were also able to generate "early reduction" allowances by reducing emissions earlier than required. By generating early reduction allowances, companies can possibly defer decisions about additional controls at other sources until a later time. The amount of early reduction allowances requested by companies represent about 20% of the first year's budget and, in many cases, were not allocated prior to the start of the program. All of these factors contribute to uncertainty prior to the start of the program and are most likely reflected in the current allowance market prices.

The second initiative to address the transport of ozone between states is the EPA's regional ozone transport rule. Similar to the goal of the OTC NO_X Budget Program, this rulemaking establishes summertime NO_X emissions budgets for Alabama, Connecticut, Delaware, Georgia, Illinois, Indiana, Kentucky, Massachusetts, Maryland, Michigan, Missouri, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia, Wisconsin, West Virginia and the District of Columbia. The rule requires that the affected states adopt adequate control programs to meet the prescribed NO_X emissions budgets and to submit these regulations to EPA for review by September 1999. The control programs are to then be implemented by May 1, 2003. Although EPA established a summertime emission budget for each state under this rulemaking, EPA does not have the authority to mandate the specific controls or the specific sources that the states should regulate to achieve the budgets. Each state has the flexibility to develop their own control strategy. However, EPA calculated the emission budgets by assuming a 0.15 lb/mmBtu NO_X emission rate for large electric generating sources and 60%, 90%, and 30% reductions for industrial boilers and turbines, stationary combustion engines, and cement kilns, respectively.

In the regional ozone transport rule, EPA recommended that states implement the reductions for the electric generating units and the industrial boilers and turbines through a multi-state emission trading program. To facilitate the establishment of the trading program, EPA developed a model trading program that is very close in design to the OTC program. The EPA rulemaking is currently facing litigation by eight of the affected states as well as by affected companies and associations. A decision on the litigation is expected around the time of the September 1999 state submittal deadline. During the interim period, EPA is continuing to implement the rulemaking by working with states to develop the required control programs.

At the same time that EPA finalized the regional ozone transport rule in November 1998, EPA also proposed two other regulations that are intended to produce the same or similar levels of emission reductions as required under the final rule. The first proposal results from petitions that were filed by eight northeastern states. In response to the petitions, EPA proposed and recently

finalized a determination that twenty of the twenty-three jurisdictions named in the regional ozone transport rule (excluding Georgia, South Carolina, and Wisconsin) would be subject to a future federal rulemaking. EPA has proposed to not implement this rulemaking until after state submittals are due for the regional ozone transport rule in September 1999. The second proposal is for a Federal Implementation Plan (FIP) that may be used by EPA to require emission reductions in states that fail to comply with the requirements of the regional ozone transport rule. The states potentially subject to this rulemaking are the same twenty-three jurisdictions covered under the regional ozone transport rule. EPA proposed to take immediate action against any state that does not adopt and submit to EPA a complete state plan for complying with the regional ozone transport rule. Both the state petitions and the FIP effectively serve as contingency measures for EPA to achieve emission reductions in states covered under the regional ozone transport rule.